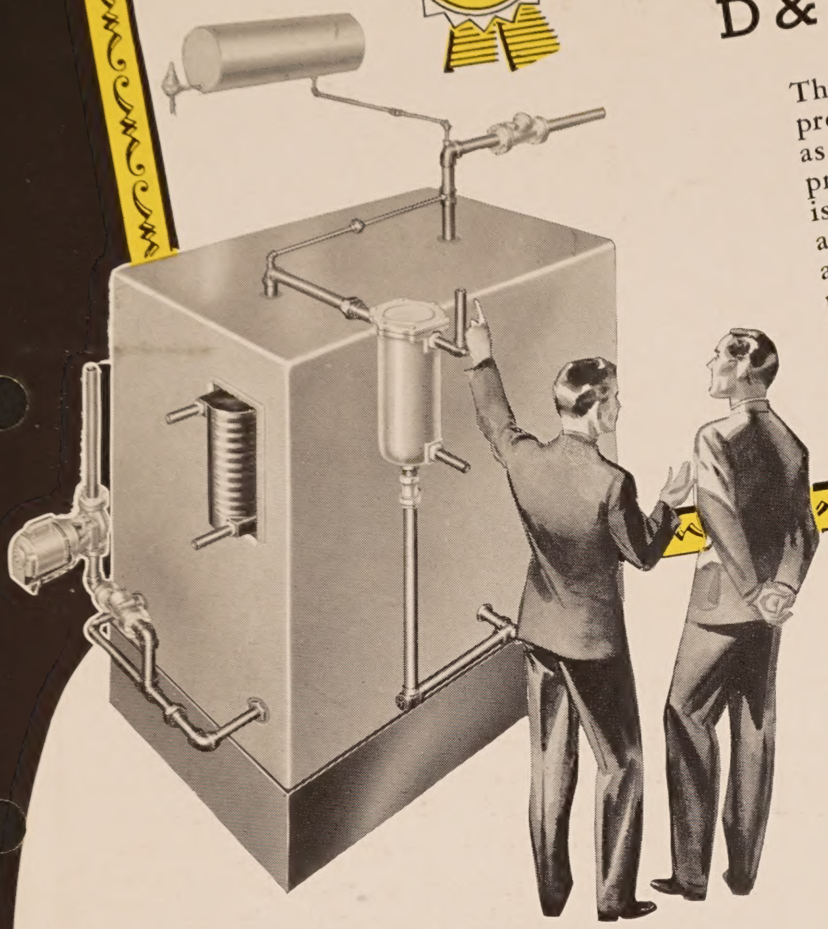
Guarantee

D & T SIMPLEX VALVE

The D & T Simplex Valve, when used with the proper size Simplex or B & G Air Sealed Tank, as shown in our current literature, and when properly installed on a hot water heating plant, is guaranteed to protect the boiler against damages due to pressures in excess of 30 lbs. Bell and Gossett Company will pay the Heating Contractor for labor and material in replacing any part of the boiler damaged when it is found by us that the D & T Simplex Valve did not relieve at 30 lbs. pressure or less, provided the seal is unbroken.



D&T PRESSURE SYSTEMS

The Original

"TANK-IN-BASEMENT" SYSTEM

Air Cushioned

PROTECTION FOR CLOSED HOT WATER SYSTEMS

Bulletin DT-1037

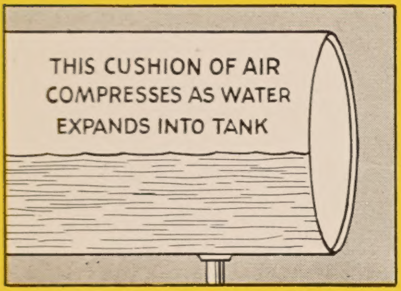
Copyright 1937, Bell & Gossett Co.

BELL & GOSSETT CO.

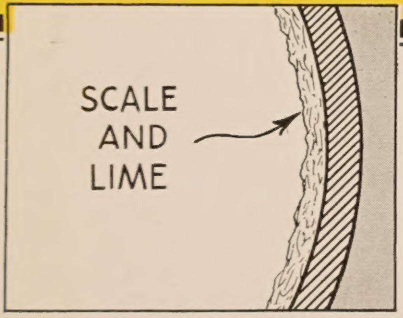
3000 WALLACE STREET, CHICAGO

Modern warm water heating den

D & T SIMPLEX COMPRESSION TANK



TANK PROVIDES AN AIR CUSHION AGAINST EXPANDING WATER



FREQUENT MAKE-UP LIMES THE BOILER

SEE BACK PAGE FOR COMPLETE LINE OF RELIEF AND REDUCING VALVES

WHY A COMPRESSION TANK IS NEEDED

The use of a compression tank on closed hot water heating systems is now universally recognized as essential to greatest economy and suitable protection of the boiler. The Certified Heating Associations, for example, require that *a compression tank be installed on all closed jobs.*

And, of course, on installations where high temperature water is used, a closed system with a compression tank is absolutely imperative, in order that sufficient pressure can be developed to prevent boiling of the water in the system.

The importance of the compression tank is due to the following reasons:

Reduces Fuel Consumption

When the water in the system is heated it expands. If no tank is installed, the expanding water is forced through the Relief Valve onto the basement floor. When the system cools, additional water must be drawn in to replace the amount lost by expansion. Extra fuel is then consumed to heat this cold water. With the number of expansion and contraction periods that occur daily in a hot water system, this extra fuel can easily total up to an appreciable sum during a heating season.

Prevents Liming of the Boiler

Likewise, the continual adding of water brings in foreign matter, such as sediment and lime. Over a period of years, the boiler becomes scaled and requires an ever-increasing amount of fuel to heat it.

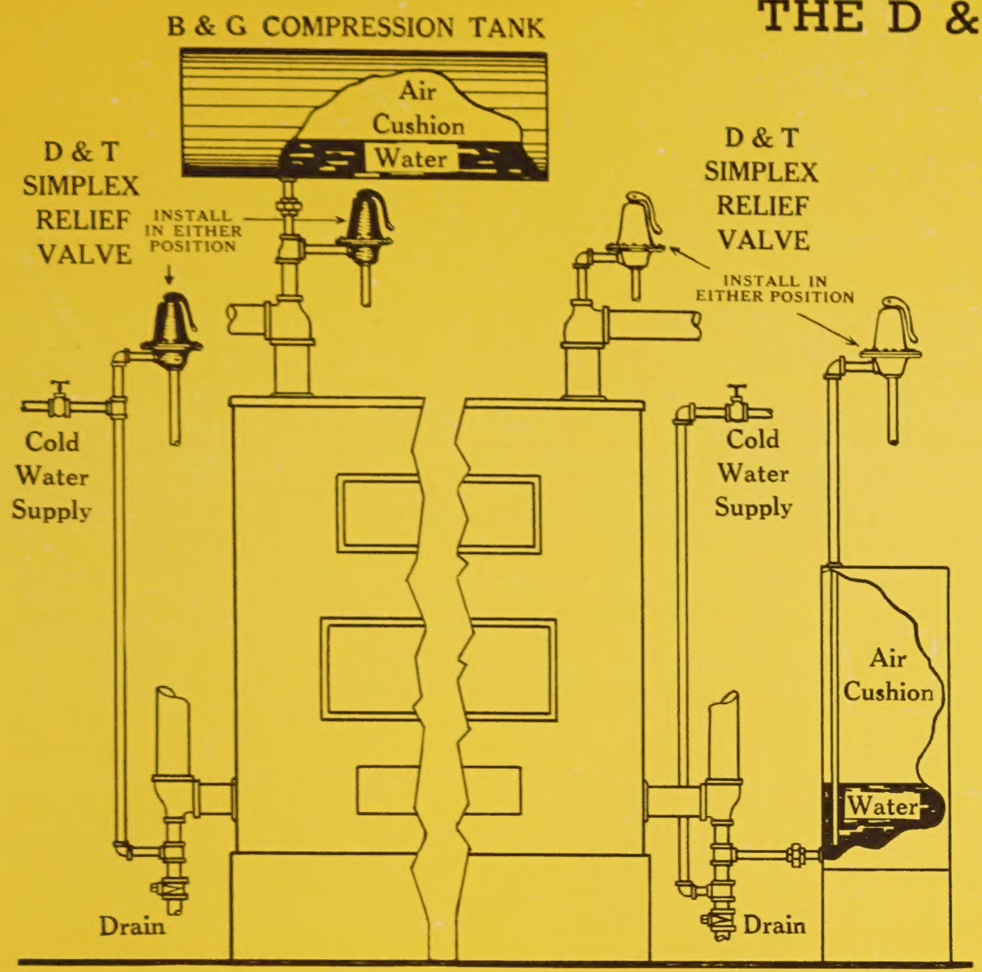
When a compression tank is used, the expanding water is forced up into the tank, compressing the air. As the system cools, the water is forced back into the boiler by this built-up air pressure. Hence, fuel consumption is held to a minimum, and lime and sediment deposits in the boiler prevented.

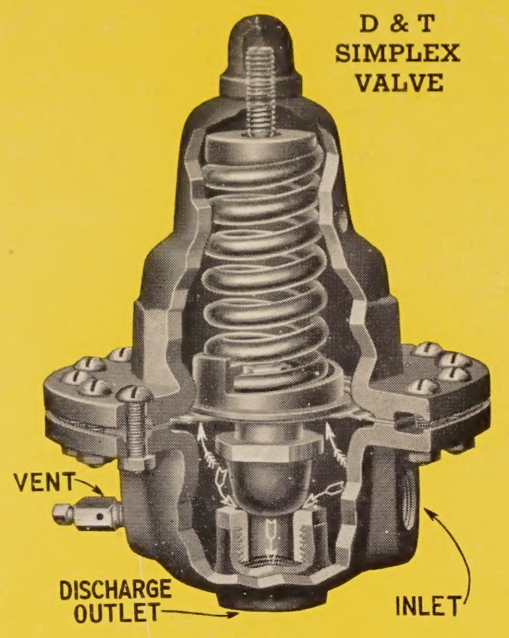
The cushioning effect of the compressed air in the top of the tank relieves the pressure on the boiler and prevents damages that might otherwise occur from overheating.

D & T Tank-in-Basement Systems are available in different types as described on the following pages.

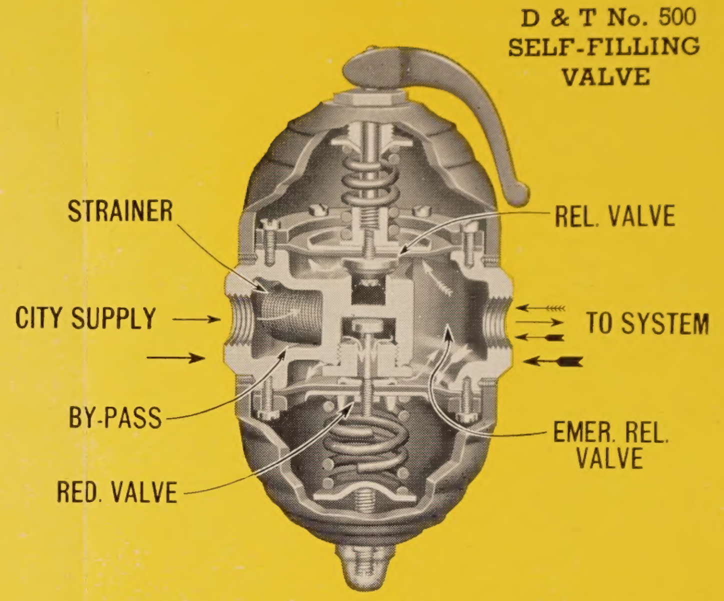
mands the use of a D & T "Tank-in-Basement" Pressure System

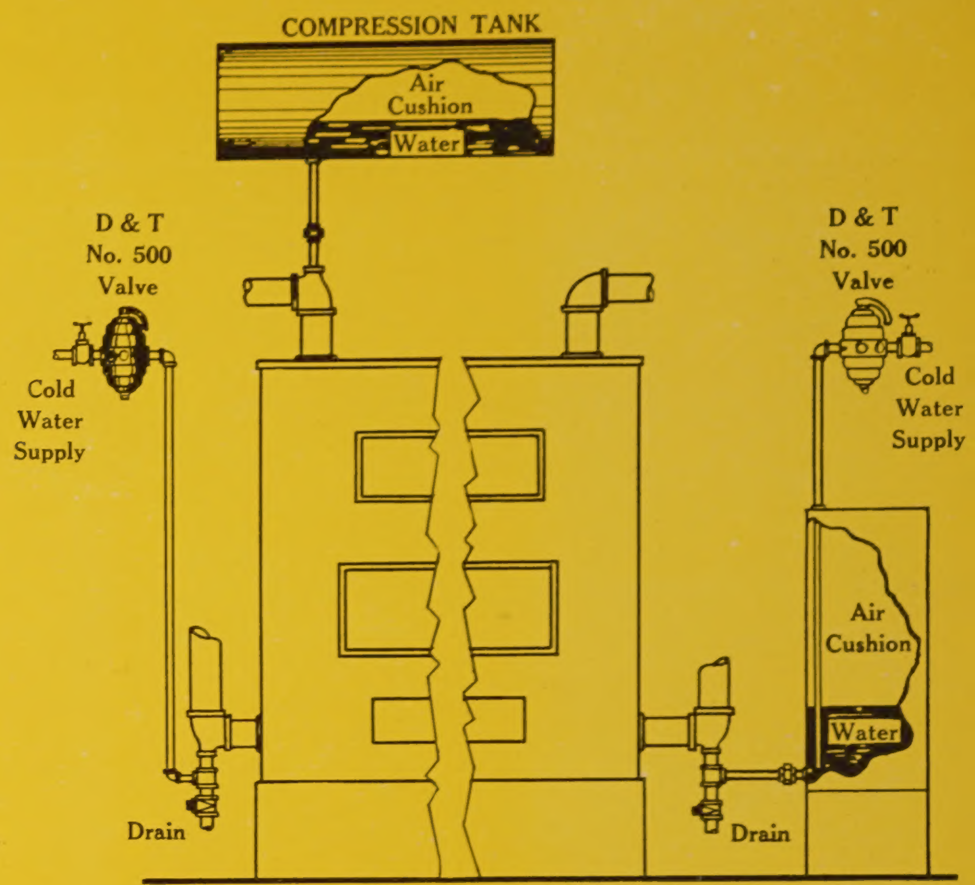
THE D & T SIMPLEX SYSTEM


B & G COMPRESSION TANK
Air Cushion
Water
D & T SIMPLEX RELIEF VALVE
INSTALL IN EITHER POSITION
D & T SIMPLEX RELIEF VALVE
INSTALL IN EITHER POSITION
Cold Water Supply
Cold Water Supply
Air Cushion
Water
Drain
Drain



THE D & T SELF-FILLING SYSTEM





All D & T and B & G Relief Valves are equipped with a lifting lever as required by the ASME Code.

NOTE!

In the diagrams above you will see that the D & T Compression Tank can be installed either on the floor or ceiling. There is also an option of two locations in which to install the Simplex Valve.

D & T SIMPLEX PRESSURE SYSTEM

The D & T Simplex "Tank-in-Basement System" is as remarkable for its foolproof simplicity as for its complete dependability . . . yet its installation cost is lower than that of any other guaranteed tank-in-basement system. The equipment consists of one D & T Air-Sealed Tank, one D & T Simplex Relief Valve and one D & T Vacuum-Breaking Valve.

This system is available in a suitable range of capacities.

Simplex Relief Valve Unit

There is no substitute for a *good* relief valve . . . and in every respect the Simplex Valve lives up to this qualification. The body is of heavy, durable construction and the valve seat made of rust-proof bronze. Any pressure in excess of 28 lbs. lifts the extremely large, corrugated phosphorus-bronze diaphragm to relieve the system. The large area of the diaphragm assures ample lifting power and the positive action that guarantees safety.

This valve has no guides to set up friction or become corroded.

D & T Simplex Compression Tank

This tank is used on both the Simplex System and the Self-filling System as shown in the diagrams above. It is made of copper-bearing steel and welded to make it absolutely air-tight. Hence it will not water-log but always maintain its protective cushion of air.

Note that the D & T Tank can be installed either on the floor or ceiling, so that there is no situation in which it cannot be employed.

Recommended tank sizes for various amounts of radiation are given on the page headed "Sizes and Capacities."

D & T SELF-FILLING PRESSURE SYSTEM

The equipment for this system is identical with that of the Simplex System excepting that the Simplex Relief Valve is replaced by the D & T No. 500 Valve. This unit combines the functions of Relief Valve, Reducing Valve, Strainer and By-Pass Valve. It also incorporates an Emergency Relief Valve to protect the boiler against water hammer *which frequently occurs in the domestic water system.* In operation the No. 500 Valve performs the double duty of relieving excess pressure and keeping the system filled with water. The No. 500 is second only to the famous Simplex Valve. It performs a different duty but is perfectly reliable in every way.

Construction and Operation of the D & T No. 500 Self-Filling Valve

This valve is factory adjusted, noiseless and requires no attention. All parts exposed to water are made of corrosion-proof phosphorus bronze and stainless steel, while all springs and set screws are cadmium plated.

The relief valve of this unit opens at 28 lbs. pressure. A chemically-treated composition diaphragm is used because this material is far superior to metal when the diaphragm must be kept small. This fact is well recognized by manufacturers of the most expensive reducing valves in which chemically-treated composition diaphragms are universally employed. The high "lift" necessary in diaphragms of small diameter causes metal to rapidly lose its elasticity and consequently its effectiveness.

If the pressure on the system should drop below a certain point, the reducing valve opens to admit water through the strainer, thus automatically keeping the system filled. The factory setting of 12 lbs. can be easily adjusted to meet varying building heights of one, two and three stories.

The valve itself employs a special composition disk, seating on stainless steel. Operation is noiseless because the reducing valve will not chatter.

Rapid Filling an Exclusive Feature

The system can be rapidly filled initially or after draining by opening the ½ inch by-pass valve. This is an exclusive feature and an important time saver. It is not necessary, as in the ordinary system, to hook up a hose to the drain cock to obtain speedy filling.

In addition, there is embodied in the No. 500 Valve an Emergency Relief Valve which protects the boiler against the terrific shocks of water hammer caused by quickly closing domestic water faucets.

Sizes and Capacities

SIMPLEX SYSTEM —AIR CUSHIONED

The use of a compression tank on closed hot water heating systems is now universally recognized as essential to greatest economy and suitable protection of the boiler. The D & T Simplex "Tank-in-basement System" is as remarkable for its fool-proof simplicity as for its complete dependability . . . yet its installation cost is lower than that of any other guaranteed tank-in-basement system. Equipment consists of one D & T Air Sealed Tank, one D & T Simplex Relief Valve and one D & T Vacuum Breaking Valve. Typical installation sketch on preceding page shows how tank can be installed either on floor or ceiling.

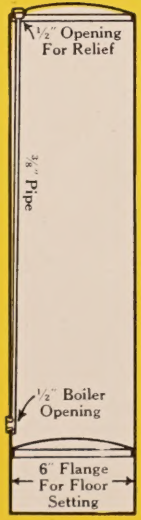
System No.	*Capacity Sq. Ft. Radiation	Tank Dimensions	Shipping Weight, lbs.
18	Up to 500 ft.	13″x39½″	52
24	Up to 1000 ft.	13″x50½″	62
30	Up to 2000 ft.	13″x61½″	72
35	Up to 2500 ft.	16″x48″	82
40	Up to 3000 ft.	16″x54″	92
60	Up to 4000 ft.	18″x62″	136
80	Up to 4500 ft.	24″x45″	156

No gauge or thermometer furnished with above system.

No. 500 SELF-FILLING SYSTEM— AIR CUSHIONED

The equipment for this system is identical with that of the Simplex System, excepting that the Simplex Relief Valve is replaced by the D & T No. 500 Valve. This unit combines the functions of Relief Valve, Reducing Valve, Emergency Relief Valve, Strainer and By-Pass Valve. In operation, it performs the double duty of relieving excess pressure and keeping the system filled with water. Note that tank can be installed either on the floor or ceiling.

System No.	*Capacity Sq. Ft. Radiation	Tank Dimensions	Shipping Weight, lbs.
518	Up to 500 ft.	13″x39½″	50
524	Up to 1000 ft.	13″x50½″	60
530	Up to 2000 ft.	13″x61½″	70
535	Up to 2500 ft.	16″x48″	80
540	Up to 3000 ft.	16″x54″	90
560	Up to 4000 ft.	18″x62″	134
580	Up to 4500 ft.	24″x45″	154



D & T SIMPLEX AIR CUSHION COMPRESSION TANK

There are thousands of closed hot water heating systems that were installed before the importance of an air-sealed compression tank was recognized. The D & T Simplex Tank can be easily installed on these jobs by merely inserting a tee above the drain cock and connecting to the side opening of the tank, which is placed on the floor in an upright position.

Tank No.	Gallons	Dimensions	*Capacity Sq. Ft. Radiation	Shipping Weight, lbs.
S18	18	13″x39½″	Up to 500 ft.	42
S24	24	13″x50½″	Up to 1000 ft.	52
S30	30	13″x61½″	Up to 2000 ft.	62
S35	35	16″x48″	Up to 2500 ft.	72
S40	40	16″x54″	Up to 3000 ft.	82
S60	60	18″x62″	Up to 4000 ft.	126
S80	80	24″x45″	Up to 4500 ft.	146

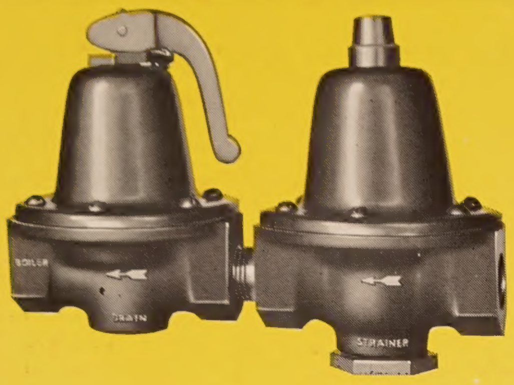
B & G AIR CUSHION COMPRESSION TANK

TO BE INSTALLED ON CEILING ONLY

Tank No.	Gallons	Dimensions	*Capacity Sq. Ft. Radiation	Shipping Weight, lbs.
15	15	12″x30″	Up to 300 ft.	28
18	18	12″x36″	Up to 500 ft.	34
21	21	12″x42″	Up to 700 ft.	40
24	24	12″x48″	Up to 1000 ft.	45
30	30	12″x60″	Up to 2000 ft.	55
40	40	13″x71″	Up to 3000 ft.	66

*Above capacities are based on forced circulation and small pipe sizes. On old systems use next larger size tank.

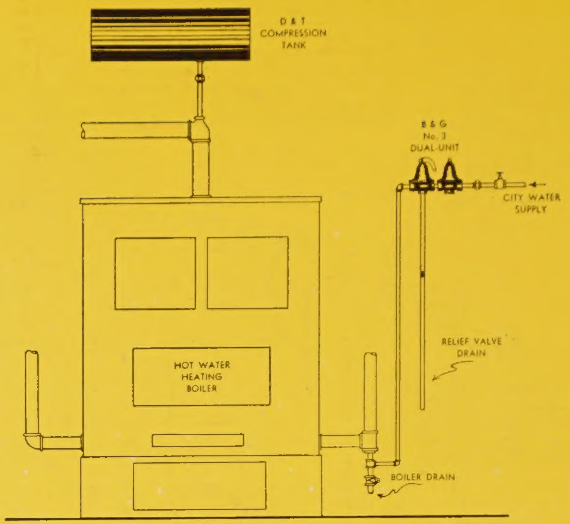
Relief & Reducing Valves

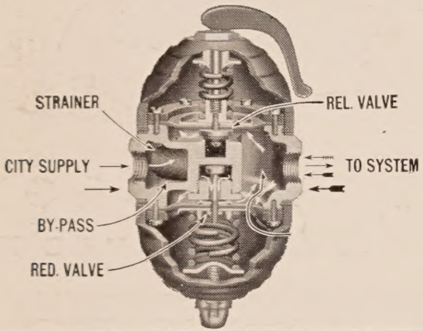


B & G No. 3 and No. 8 DUAL-UNIT VALVES

B & G No. 3 Dual Unit is a moderately-priced combination relief and reducing valve—yet is built to the high standards of all B & G Products and offers many outstanding superiorities. The body and all parts exposed to water are made of corrosion-proof *brass*—with built-in strainer and *extra large* relief diaphragm. This valve will fill a heating system faster than any other valve in the same price class.

B & G No. 8 Dual Unit is identical with the No. 3 excepting that the body is of iron instead of brass. Designed especially for jobs where price is the first consideration.





D & T No. 510 Self-Filling Valve

This is an exact duplicate of the No. 500 Unit but without the Emergency Relief Valve.

D & T No. 1 Relief Valve

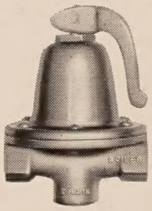
A low-priced dependable cast iron relief valve. It has ½″ inlet and discharge openings and stainless steel valve seat, which insures long life and a more than satisfactory value at a strictly competitive price. Relieves at 28 lbs.

B & G High Pressure Relief Valve

Designed to give protection against excess pressure to hot water supply boilers, gas storage tank heaters, etc. Diaphragm-operated, with body and all working parts made of brass. Also made with iron body—B & G Nos. 9 and 10.

No.	Size	Construction	Pressure Setting	*Pressure Range
4	½″	Brass	75 lbs.	40 to 150 lbs.
5	¾″	Brass	75 lbs.	40 to 150 lbs.
9	½″	Iron	75 lbs.	40 to 150 lbs.
10	¾″	Iron	75 lbs.	40 to 150 lbs.

*Standard setting 75 lbs. For other settings specify when ordering. Adjustable 40 to 150 lbs.



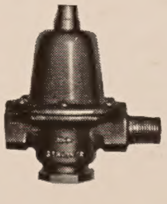
B & G No. A3 and A8 Relief Valve

No. A3 is same relief valve used in the B & G No. 3 Dual Unit. Brass body. Relieves at 28 lbs. Also available with iron body—B & G No. A8 Valve.

B & G High Pressure Reducing Valve

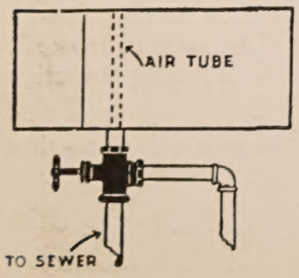
Protects plumbing fixtures against excessive line pressures. Factory adjusted for 150 lbs. initial pressure, 45 lbs. delivery pressure. Other pressures must be specified when ordering. All brass construction, built-in strainer, extra large diaphragm.

No.	Size	Construction	Factory Pressure Setting
6	½″	Brass	45 lbs. delivery
7	¾″	Brass	45 lbs. delivery



B & G No. B3 and B8 Reducing Valve

No. B3 is same reducing valve used in the B&G No. 3 Dual Unit. Brass body. Also available with iron body—B & G No. B8 Valve.



D & T Air Charger and Tank Drainer

Five minutes' time *and* a simple twist of a valve handle each year will assure the home owner of an "air charged" tank.

Sell this device with every type air cushion tank job. No more water logged tanks—complete simple operating instructions come packed with each valve.

B & G Hot Water Heating System Air Vent

Positively eliminates air from the high point of any type of hot water heating system.

Made in 1¼″ size only.

Printed in U. S. A.